

# Subject: - Computer Organization & Architecture

Class Name: CA202 Chapter 1 Q&A 09-04-2023

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## 1. Q: Explain abacus history? And How it works?

➤ **Ans: abacus history..**

As the most ancient calculator known, the origin and inventor of the abacus is unknown.

It's been used for centuries in China and has a long history of use in Ancient Greece, Rome, Russia Japan, and Babylon.

➤ **Abacus How it works..**

Despite its long history and unknown inventor, the abacus has worked basically the same way throughout the centuries.

It's a fairly straightforward calculator that is still used in many countries in schools or markets for counting.

## 2. Q: Write note, idea of computing system?

➤ **Ans: idea of computing system ...**

A **computer system** is a set of integrated devices that input, output, process, and store data and information.

## 3. Q: Define the term Computer Architecture?

➤ **Ans: Computer Architecture.....**

**Computer Architecture** can be defined as a set of rules and methods that describe the functionality, management and implementation of computers.

## 4. Q: Explain, the Electro-Mechanical Age of computing?

➤ **Ans: the Electro-Mechanical Age of computing..**

**The electromechanical age** is when we first start to see connections between our current technology and its ancestors.

can be defined as the time between 1840 and 1940. These are the beginnings of telecommunication.

**5. Q: Explain, the Electrical Age of computing?**

➤ Ans: **the Electrical Age of computing...**

**The electronic age** is what we currently live in. It can be defined as the time between 1940 and right now.

The ENIAC was the first high-speed, digital computer capable of being reprogrammed to solve a full range of computing problems.

**6. Q: Briefly, explain the colossus computer?**

➤ Ans: **explain the colossus computer....**

**Colossus computer**, the first large-scale electronic computer was the electric programmable computer used by the British during World War II.

The Colossus was used as a codebreaker to decode valuable military intelligence during the war.

**7. Q: What is the difference between a general purpose machine and a special purpose machine?**

➤ Ans: **general purpose machine and a special purpose machine**  
**general purpose machine**

- GPM are flexible machines that perform operations of different type.
- Initial Investment cost is less.
- They are slow in operation.
- Only one operations is performed at a time.
- GPM, there is only one tool spindle.
- Initial Investment cost is less.

**a special purpose machine**

- SPM perform operations of same type only.
- Initial Investment cost is high.

- They are fast in operation.
- Number of operations are performed simultaneously.
- SPM, there are multiples tool spindle.
- Initial Investment cost is high.

8. Q: **Explain how computer storage and memory is measured?**

➤ Ans: **computer storage and memory is measured..**

Computer storage and memory is often measured in megabytes (MB)  
1 MB = 1024 KB and gigabytes (GB) 1 GB = 1024 MB.

A medium-sized novel contains about 1 MB of information.

9. Q: **Write the difference between EDVAC and EDSAC?**

➤ Ans: **the difference between EDVAC and EDSAC...**

**EDVAC:** (Electronic Discrete Variable Automatic Computer) was invented to improve the way programs are entered and explore the concept of **stored programs**.

**EDSAC** (Electronic Delay Storage Automatic Calculator) was the first full fully operational stored-program computer.

10.Q: **Explain two major Architectures:**

a) Complex Instruction Set Computers

b) Reduced Instruction Set Computers

➤ Ans: **Complex Instruction Set Computers**

A complex instruction set computer (CISC ) is a computer in which single instructions can execute several low-level operations (such as a load from memory, an arithmetic operation, and a memory store) or are capable of multi-step operations or addressing modes within single instructions.

➤ Ans: **Reduced Instruction Set Computers**

A Reduced Instruction Set Computer is a type of microprocessor architecture that utilizes a small, highly-optimized set of instructions

rather than the highly-specialized set of instructions typically found in other architectures.

**11.Q: Computer technology has shown an unprecedented rate of improvement. This includes the development of processors and memories. Explain the recent developments in technology?**

➤ **Ans: the recent developments in technology..**

- Indeed, it is the advances in technology that have fueled the computer industry.
- The integration of numbers of transistors (a transistor is a controlled on/off switch) a single chip has increased from a few hundred to millions.
- This impressive increase has been made possible by the advances in the fabrication technology of transistors.
- The scale of integration has grown from small-scale (SSI) to medium-scale (MSI) to large-scale (LSI)

**12.Q: What is CPU performance equation?**

➤ **Ans: CPU performance equation.....**

**CPU performance equation :** analyzes execution time as a product of three factors that are relatively independent of each other.

Example :  $\text{CPU Time} = \text{IC} * \text{CPI} / \text{Clock Rate}.$

**13.Q: What does CPU performance depend on?**

➤ **Ans: CPU performance depend on...**

**the CPU performance is dependent on three components:**

- Instruction count of program
- Cycle per instruction
- Clock cycle time

**14.Q: What is performance measurement in computer Organization?**

➤ **Ans: performance measurement in computer Organization..**

Computer performance metrics (things to measure) include availability, response time, channel capacity, latency, completion time, service time, bandwidth , throughput, relative efficiency, scalability, compression ratio, instruction path length and speed up.

**15.Q: What is a good CPU speed?**

➤ **Ans: a good CPU speed....**

The clock speed measures the number of cycles your CPU executes per second, measured in GHz (gigahertz).

In this case, a “cycle” is the basic unit that measures a CPU's speed. Clock speed is also referred to as clock rate.

**16.Q: How do you calculate CPU?**

➤ **Ans: calculate CPU .....**

CPU efficiency is a measure of how well an application utilizes its requests for CPU.

**17.Q: What is MFLOPs computer architecture?**

➤ **Ans: MFLOPs computer architecture..**

**MFLOP** - million floating-point instructions per second, (rate of floating-point instruction execution per unit time) has also been used as a measure for machines' performance.

**MFLOPS is defined as follows:**

$$\text{MFLOPS} = \frac{\text{Number of floating-point operations in a program}}{\text{Execution time} \times 10^6}$$

**18.Q:What is meaning of throughput in computer?**

➤ **Ans: meaning of throughput in computer..**

**Throughput** refer (**bandwidth**) is a measure of how many units of information a system can process in a given amount of time

Throughput is **the total amount of work done in a given time.**

### **19. What is throughput in performance?**

➤ Ans: **throughput in performance..**

**Throughput** is generally represented as transactions per second (TPI) in performance, which measures how many requests your software receives in a single second.

### **20.Q: Explain the difference between throughput and response time in computer architecture?**

➤ Ans: **throughput.....**

Throughput measures the overall performance of the system. For transaction processing systems, throughput is typically measured in transactions per second (TPS) or transactions per minute (TPM).

➤ Ans: **response time....**

Response timeResponse time measures the performance of an individual transaction or query.

Response time includes the time taken to transmit the inquiry, process it by the computer, and transmit the response back to the terminal.

**END CHAPTER ONE IS HERE**